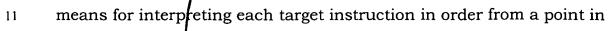Claim 1.   A method for executing a target application on a host

processor comprising the steps of:

translating into host instructions each of a sequence of target

instructions,

storing the translated host instructions,

executing the stored host instructions, and

responding to an exception during execution of a stored translated

instruction by rolling back to a point in execution at which correct state

of a target processor is known, and

interpreting each target instruction in order from the point in execution

at which correct state of a target processor is known.

Claim 2.   A method as claimed in Claim 1 which further comprises:

collecting statistics regarding the execution of sequences of instructions

which are interpreted.

Claim 3 .   A method for executing a target application on a host

processor comprising the steps of:

executing host instructions representing each target instruction of the

target application;

responding to an exception during execution of host instructions

representing a target instruction by returning to a point in execution of

the target application at which correct state of a target processor is

known; and

9   thereafter executing host instructions by interpretation of the target

10   instruction until the point of the exception.

1   Claim 4.   A method as claimed in Claim 3 which further comprises

2   collecting statistics regarding the execution of sequences of target

3   instructions which are executed.

1   Claim 5.   A method as claimed in Claim 4 in which the statistics

2   include the number of times the sequence of target instructions have

3   executed.

1   Claim 6.   A method as claimed in Claim 4 in which the statistics

2   include address of an instruction to which a target instruction including

3   a branch operation branches.

1   Claim 7.   A method as claimed in Claim 4 in which the statistics

2   include a likelihood of a branch being taken.

1   Claim 8.   A system for executing a target application designed for

2   execution on a target processor on a host processor having an

3   instruction set different than that of the target processor comprising:

4   means for translating sequences of target instructions and storing each

5   translated sequence of instructions,

6   means for selecting a stored translated sequence of instructions for

7   execution,

8   means for responding to an exception during execution of a stored

9   translated instruction by rolling back to a point in execution at which

10   correct state of a target processor is known, and

11 means for interpreting each target instruction in order from a point in

12 execution at which correct state of a target processor is known through

13 the target instruction causing the exception.

1 Claim 9.   A system as claimed in Claim 8 in which the means for

2 interpreting is an interpreter software executing on the host processor,

3 and

4 the means for translating is dynamic translation software executing on

5 the host processor.

1 Claim 10.   A method for executing a target application on a host

2 processor comprising the steps of:

3 interpreting each of a sequence of target instructions a plurality of times,

4 collecting statistics regarding the execution of the instructions in the

5 sequence of instructions as the sequence is interpreted,

6 using the statistics to determine when to cease interpreting target

7 instructions,

8 translating into host instructions each of the sequence of target

9 instructions after stopping interpreting the sequence,

10 storing the translated host instructions, and

11 executing the stored host instructions when the sequence of target

12 instructions is to be executed.

1   Claim 11.   A method as claimed in Claim 10 in which the statistics

2   include the number of times the sequence of target instructions have

3   executed.

1   Claim 12.   A method as claimed in Claim 10 in which the statistics

2   include an address of an instruction to which a target instruction

3   including a branch operation branches.

1   Claim 13.   A method as claimed in Claim 10 in which the statistics

2   include a likelihood of a branch being taken.

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